Former Crowley Maritime Oil Terminals
1100 Highway 101, South
Crescent City, California

Notice of Proposed No Further Action related to petroleum discharges.
Comment Period ends May 12, 2003

Facility Description: The former Crowley Marine Corporation aboveground bulk fuel storage terminal is located at 1100 South Highway 101 in Del Norte County, California, approximately 1 mile south of Crescent City. In June 1997 the property was sold to Hambro Forest Products. The facility was built in 1951 and included 28 aboveground fuel tanks of various size. The terminal operated until October 1983. Product was supplied to the tank farm from a fuel dock at the Crescent City Marina via a 6-inch diesel pipeline and an 8-inch gasoline pipeline. The pipelines were approximately one mile long. The tank farm had a capacity of 184,000 barrels (7.6 million gallons) of storage, including six 3,000-barrel, eleven 5,000 barrel, two 8,000-barrel, eight 10,000 barrel, and one 15,000-barrel tanks. Gasoline was stored in seventeen tanks. Diesel fuel and stove oil was stored in the remaining tanks. In the mid 1970s, a berm was constructed around the tank farm for spill control. Company personnel cleaned sludges out of each tank about every three years. The fuel was extracted down to the sludge. Two waste disposal pits were installed south of the tank farm. One pit was used for disposal of tank bottom sludges and the other for disposal of blasting sand waste generated from sandblasting tanks prior to painting. After operations ceased in 1983, two product supply lines were filled with seawater to flush product from the supply lines into the tanks. The seawater filled supply lines were then sealed.

1991 Hydrologic Assessment Report: Seven shallow (MW-1 through MW-7) and two deep (MW-8 and MW-9) monitoring wells were installed. Groundwater flow in the shallow sand water-bearing zone was southeast, toward the ocean. The highest soil concentrations of total petroleum hydrocarbons as diesel occurred near a tank piping manifold, soil sample S9 (9,100 mg/kg), the loading rack near the office, soil sample S2 (3,300 mg/kg), and the tank bottoms disposal area, soil sample S16 (29,500 mg/kg). Inorganic contamination by lead appeared to be greatest in the sandblasting waste disposal pit, soil samples S13, S14 and S15 (concentrations ranging from 258 to 554 mg/kg). Groundwater contamination by petroleum hydrocarbons was detected at two monitoring wells positioned on the southeast side of the site. Concentrations of Total Petroleum Hydrocarbons as gasoline (TPHg) ranged from 540 mg/L in MW-5 to 3,600 ug/L in MW-7. Benzene exceeded the Federal maximum contaminant level (MCL) of 5 ug/L at both locations (MW-5, 27 ug/L and MW-7, 33 ug/L).

Remedial Actions: In 1991, the interiors of all the tanks were cleaned and the pipelines were drained. All of the piping in the facility, except for the pipeline to the dock, was aboveground. This piping, including the portion of the dock pipeline from the facility to the edge of the roadway, and the aboveground storage tanks were removed in 1991. The remainder of the dock pipeline was flushed and capped at that time. In August 1994, two hundred and seventy-six (276) tons of spent sandblast material was excavated and disposed offsite. In November 1994, an additional 1,770 cubic yards of contaminated soil from the Tank Bottoms Area was excavated and disposed offsite. During July –November 1994, four additional monitoring wells were installed at the site. Two of these wells were installed west of Highway 101 at the edge of the beach. In June 1999, an additional 560 cubic yards of soil from the tank manifold area, the loading rack area and the east wall of the tank bottoms excavation was excavated. From April 1999 to December 2001, approximately 2,300 cubic yards of contaminated soil was mixed with wood chips and fertilizer and composted on-site. The remediation process reduced concentrations of TPHg by 100 %, TPHd by 91 % and TPHmo by 61 %. In the 2002 spring seeding activity, this remediated soil was incorporated into the land farming area at the site.

Site Geology and Hydrology: The site is underlain by three unconsolidated units composed of an upper sand, an intermediate depth sequence of interbedded fine-grained layers, and a lower sand unit. Weathered claystone underlines this package of unconsolidated sediments at a depth of approximately 35 feet. In the vicinity of monitoring wells MW-7 and MW-9, there is a six-foot layer of clay, between 16.5 to 22.5 feet below ground surface, that acts as a barrier to contaminants in the shallow layer migrating to the deeper aquifer.

Natural Attenuation of Contaminants in Groundwater: TPHg concentrations at the source (MW-7) have decreased from a maximum of 7,910 ug/l in October 1992 to 55 ug/l in January 2002. Benzene concentrations at the source (MW-7) have decreased from a maximum of 47 ug/l in November 1991 to 9.5 ug/l in January 2002. Benzene concentrations at downgradient well (MW-12) have decreased from a maximum of 35 ug/l in September 1995 to 14 ug/l in January 2002. The consultant for Hambro estimates that the benzene concentration in groundwater will meet water quality objectives within the next eight years.

Sensitive Receptor Survey: The nearest sensitive receptor would be the Pacific Ocean located approximately 200 feet to the south of the site, and 300 feet from the former source area near MW-7 and an adjacent slough. No known groundwater receptors exist within 250 feet of the site.

Conclusion: Since 1991, extensive remediation work has resulted in the removal of all primary sources from the site. The secondary source, contaminated soil, has been either removed from the site or remediated on-site. Except for a small area of the site, groundwater is not impacted. The small area in the vicinity of monitoring wells MW-5, MW-7 and MW-12 contains shallow groundwater contaminated with benzene. In the vicinity of monitoring wells MW-7 and MW-9, there is a clay layer, between 16.5 and 22.5 feet that keeps the shallow groundwater separated from the deeper aquifer. The consultant for Hambro has estimated that the concentration of benzene in this shallow groundwater will reach the MCL, 1.0 ug/L, within the next eight years.

Proposed Action: Site is proposed for no further action.

MtBE Status: MtBE has not been detected in any of the soil or groundwater samples collected at the site.

Unless comments are received or new information is presented, Regional Water Board staff plan to concur with no further action upon conclusion of the comment period.
Please contact Ron Allen by telephone at (707) 576-2848 or e-mail at aller@rb1.swrcb.ca.gov for all issues concerning the Former Crowley Maritime Oil Terminals site.